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The Maternity Hospitalization Act of Alberta 1944

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UNDER the Maternity Hospitalization Act, which was passed at the last session of the Legislative Assembly of Alberta, the Minister of Health is authorized to enter into agreements upon such terms and conditions as he deems proper with the board, governing body, or person, as the case may be, operating any hospital for the reception, care and treatment of maternity patients. The Act provides that, in any agreement so entered into, provision may be made for payment according to the services, facilities and equipment available in the hospital and used for maternity service, and that any such agreement shall safeguard, so far as is reasonably practicable, the wishes and best interests of the patients, the hospital, and the Department of Public Health.

Under the Maternity Hospitalization Act, "hospital" means an approved hospital as defined in The Hospitals Act, and any other hospital or nursing home approved by the Minister for the purpose of the Act.

The Maternity Hospitalization Act provides that the Minister may, with the approval of the Lieutenant Governor in Council, make regulations as to any of the following matters:

- (1) The admission and reception of patients into a hospital.
- (2) The discharge of patients from the hospital.
- (3) The accommodation and treatment to be furnished by hospitals to patients admitted under the provisions of the Act.

Presented before the Section of Epidemiology at the thirty-third annual meeting of the Canadian Public Health Association, held in the Royal York Hotel, Toronto, November 6-8, 1944.

(4) Prescribing the special circumstances under which women may be entitled to the benefits of the Act.

(5) Providing for the dividing of the Province into zones, and making rules as to the hospitalization of a patient in a hospital within the zone in which he resides, and the terms and conditions under which she may be entitled to hospitalization in a hospital in another zone or in a hospital which has not entered into an agreement under the provisions of the Maternity Hospitalization Act.

(6) Generally for the carrying out of the provisions of the Act.

Any woman: (a) who has been a resident of the Province for twelve consecutive months out of the twenty-four months immediately preceding her admission to a hospital as a patient under the provisions of the Act, and who is so resident at the time of her admission, and whose hospitalization is not a responsibility of the Dominion Government; or (b) who, by reason of circumstances arising out of the war, or by reason of other exceptional circumstances, is declared by regulation made hereunder to be entitled to the benefits of the Act, although not coming within the requirements of the above-mentioned Section A, shall be entitled to free hospitalization for herself and her new-born infant or infants for a maximum period of twelve days, and shall be entitled to all public ward maternity service of the hospital. The Act provides that the twelve-day period shall include the day of delivery of an infant born after a period of not less than twenty-eight weeks' gestation.

The Act provides that nothing shall prevent a hospital making an arrangement with any person for the maternity hospitalization of any woman in a semi-private or private ward, but in any such case there shall be no liability on the Minister with respect to the extra costs of hospitalization in a semi-private or private ward, over and above the public ward maternity charges.

It is provided that nothing in the Act shall prevent a person who does not desire to take advantage of the provision made for public ward maternity service assuming entire responsibility for such service.

After consultation with obstetricians and hospital administrators, a schedule (see Appendix) was accepted as a means of assessing the maternity facilities available in various hospitals. The advice of other people interested in maternity service was also obtained. A survey form designed with a view to obtaining complete information concerning equipment and facilities available in the hospitals for the care of maternity patients and new-born infants, which was based on the above-mentioned schedule, was forwarded to each hospital. When these survey forms were returned to the Department, the facilities of the hospital were assessed on the basis of the above-mentioned schedule. A committee representing The Associated Hospitals of Alberta met with a committee representing the Provincial Department of Health in working out a classification of hospitals on the basis of the information submitted on the survey forms.

Under this classification the hospitals fell into six main groups. The payments for maternity hospital services, including the care of the infant, made by the Department to the hospitals range from \$2.10 per patient per

day to \$3.60 per patient per day. In addition to the above-mentioned per diem rates, the Department pays each hospital a grant of 45c. per day for the mother and 45c. per day for each infant. In the yearly classification hospitals will receive credit for improvements in facilities and for additions to equipment.

Under the provisions of the Act, which went into effect on April 1, 1944, agreements have been made with 90 approved hospitals and 20 nursing homes.

In 1943, 19,290 births were registered, giving a birth rate of 24.4 (based on a population of 792,000). Eighty-four point seven per cent of the births occurring in the province in the year 1942 occurred in approved hospitals. It is expected that over 90 per cent of the births in 1944 will occur in approved hospitals and nursing homes.

The Certificate of Residence which is required to be signed by each patient for whom a claim is made by the hospital is shown in Fig. 1; and the monthly maternity return which each hospital is required to forward to the Department, in Fig. 2.



ALBERTA

CERTIFICATE OF RESIDENCE

Form 637-44

I THE UNDERSIGNED declare that I have resided in the Province of Alberta for twelve (12) consecutive months out of the twenty-four (24) months immediately preceding my admission to the _____ Hospital, and my place of residence at the present time is in the Province of Alberta, and that I have received the benefits of Maternity Hospitalization as provided under The Maternity Hospital Act. for a period of _____ days.

FIGURE 1

[illegible]

FIGURE 11

Appendix

GOVERNMENT OF THE PROVINCE OF ALBERTA

DEPARTMENT OF PUBLIC HEALTH

Marking System—Maternity Services

1944

On the recommendation of a committee consisting of two maternity specialists and two hospital administrators, the following schedule of marks was accepted as a means of assessing the maternity facilities available in various hospitals. The advice of other people interested in maternity services was also obtained. The committee recognizes many defects in the system and appreciates the fact that others might question the distribution of points but feels, however, that no system of marking could be developed which would be 100% acceptable. The use of this system was suggested by the group appointed by the Associated Hospitals of Alberta, they in turn having obtained the general idea from an article by Dr. Harvey Agnew published in *The Canadian Hospital*, November 1943.

The Point System

HOSPITAL

1. <i>Hospital Administration</i>	
Full-time Medical Superintendent	15
Full-time Nursing Superintendent	15
Out-patient department (pre- and post-natal care)	10
2. <i>Obstetrical Staff 110</i>	
Chief of Obstetrics—if a specialist	40
Obstetrical specialists on the staff	40
(A specialist is one certified by the University of Alberta or by the Royal College)	
General Practitioners on Staff	30
(Full points only if at least two general practitioners are available)	
3. <i>Anaesthetic Staff 15</i>	
If specialist on staff	5
Anaesthetics given by general practitioner or by interne	10
Anaesthetics given by nurse	0
4. <i>Pediatric Service 125</i>	
Specially trained day supervisor	15
" " night supervisor	15
" " case room nurse (days)	15
" " case room nurse (nights)	15
(A specially trained nurse is one who has had at least one year's training under proper supervision on an adequate maternity service or one who holds an obstetrical certificate from a recognized hospital or university.)	
If the number of nurses—trained or in training—equals one for 2½ maternity cases	40
If the hospital operates a training school for nurses	10
If the maternity nursing service is completely separate from the nursing service in the balance of the hospital	15
6. <i>Interne Service</i>	50
7. <i>Dietitian—with University Certificate</i>	20
8. <i>X-ray Services 20</i>	
Power of machine—under 30 M.A. 3 }	
or if 30 over M.A. 5 }	5
(There must be a Bucky Diaphragm)	
System of pelvic measurement by x-ray	3
Stereo viewer	2
X-ray specialist on hospital staff 5 }	
or if part-time 3 }	5
Technician trained in taking pelvic plates	3
Training school provided for x-ray technicians	2

9. *Laboratory* 25

Full-time medical laboratory man.....	5
" trained technician.....	10

Tests available:

Urinalysis—qualitative
 quantitative

Blood counts

Bacteriology

Blood grouping

Blood matching

Blood chemistry

N.P.N.

Urea

Creatinine

Uric acid

Chlorides

Sugar

Serum protein

Hematocrit

Sulpha determination

Rh. factor

10. <i>Emergency Blood Service</i>	5
Blood bank, plasma bank, donor service.	

11. *Physiotherapy* 10

Massage available by trained personnel.....	5
Electric therapy—e.g., Elliot apparatus, etc.....	5

12. *Physical Plant* (as it relates to obstetrics only)

(a) If maternity cases are separated from other cases.....	15
(b) If air conditioning is provided.....	5
(c) Isolation facilities for mother if needed.....	5
(d) Separate admitting service for maternity cases (with separate bath, lockers, nurse, etc.).....	5
(e) Ante-partum facilities—separate room (intravenous equipment-oxygen-restraint—full-time nurse).....	5
(f) <i>Wards</i> 105	
Distribution and spacing of beds to reduce infection.....	25
Fowler beds, or equivalent, with spring-filled mattresses.....	50
Adequate signal system.....	15
Other ward furniture.....	15
(g) <i>Preparation Room</i>	5
Table with stirrups, toilet, wash facilities, clock, instrument sterilizer, blood pressure equipment and stethoscope.	
(h) <i>Labour Room</i> 40	
One room for each 10 maternity beds.....	4
Bed.....	4
Bedside table and chair.....	4
Clock with swoop hand.....	4
Blood-pressure equipment and stethoscope.....	4
Cupboards.....	4
Running water.....	4
Toilet and wash facilities.....	4
Receptacles for discarded material.....	4
Examining equipment.....	4
(Constant care should be available.)	
(i) <i>Case Room</i> 90	
One case room for each 15 maternity beds.....	5
Impervious finish—especially floors.....	5
Delivery table.....	30
(Should give lithotomy position and have a removable tail piece and a thick rubber mattress.)	
Good coiling or spot-light—operating-room type.....	5
Anaesthetic machine—ether, oxygen, nitrous oxide.....	5
Baby resuscitator.....	10
(Must give negative and positive pressures and oxygen administration.)	
Automatic Suction 5	
{ If electric 5 }	
{ Water operated 5 }	
{ Catheter and bulb 2 }	
	5

Instrument table.....	5
Gown table.....	5
Bipod basin stand.....	2
Standards for douche, intravenous, etc.....	5
Adequate cupboard space.....	5
Stools.....	1
Stethoscope.....	1
Clock with second hand.....	1
Telephone service should be close to the case room.....	
(j) <i>Scrub-up Room</i>	5
May be in the case room. Should have sinks with foot or knee controls, sterile brushes, caps and masks, etc.....	
(k) <i>Sterilizing Room</i> 40	
Autoclave.....	15
Instrument sterilizers.....	10
Sterile water tanks—hot and cold.....	10
Perineal-care tray.....	5
(l) <i>Utility and Hopper Room</i>	10
Should contain—work tables, glove rack, cupboards, sink, hopper, bed pans and brush, bed-pan sterilizer, bed-pan rack, specimen bottles, dirty-linen hopper.....	
(m) <i>Laundry</i> 40	
If maternity supplies are laundered separately.....	10
If laundry facilities are adequate.....	15
If all baby linen is autoclaved.....	10
Adequate rinsing.....	5
(n) <i>Doctor's Rest Room</i>	5
Couch, chairs, table, phone, lockers, shower, wash basin, toilet.....	
(o) <i>Nursery</i> 160	
<i>Sleeping Room</i> 60	
Bassinettes—if 6 inches apart 20	
or if in racks of three 10	
or if in racks of six 5	
Temperature controlled at 68°-72°.....	5
20 sq. ft. of floor per bassinette.....	30
Impervious floor.....	5
<i>Bathing Room</i> 30	
Temperature controlled at 80°.....	5
Bathing table—impervious surface.....	5
Scales.....	3
Cupboards for sterile linen.....	3
Individual baby basin.....	3
Hot and cold water—foot taps.....	3
Dispensers for soap and hand lotion.....	3
Automatic suction—as in case room.....	5
(p) <i>Premature Nursery</i> 25	
Controlled heat and humidity.....	15
One bassinette to 10 maternity beds, hot and cold water—foot or knee control, suction apparatus.....	
or suitable incubator space in general nursery.....	
(q) <i>Isolation Nursery</i>	20
One bassinette to 15 maternity beds. Hot and cold water—foot or knee control. Separate cubicles—cupboard space, sterilization for bottles and nipples, etc.....	
(r) <i>Formula Room</i>	25
Stove, refrigerator, hot and cold water, cupboards, sterilization of bottles and nipple.....	
(10 points to be deducted if formulae are put up in hospital kitchen or diet kitchen.)	
13. <i>Instruments</i> 30	
If owned by hospital.....	10
Routine instruments available.....	10
2 pairs scissors—blunt points—open wide	
6 hemostatic forceps	

- 2 needle forceps
- 1 toothed dissecting forceps
- 1 ring forceps
- 1 catheter
- 1 bulb syringe
- 1 placenta basin
- 1 kidney basin
- 1 antiseptic dish
- Towels, drapes and dressings
- Needles and suture material
- Medicine glasses
- Cord clamps or tape
- Gelfi perineal retractor

Special Instruments Available..... 10

- obstetrical forceps (axis traction)
- after coming head forceps
- large bivalve speculum
- small bivalve speculum
- weighted or Sims speculum
- Voorhees bags 3, 4 and 5 and metal syringe
- 3-ring forceps
- 2 uterine dressing forceps
- 3 yards of 2-inch uterine packing
- Cranicolast or Craniotribe
- perforating scissors
- 2 right-angle retractors
- Allis forceps
- Kelly forceps
- straight forceps
- scalp forceps—toothed—Willets
- single and double toothed cervical tenacula.

In addition to proper equipment, proper procedures within the maternity department are a prerequisite to a Maternity Hospitalization Agreement.

Communicable-Disease Control Activities in a Suburban Health Department

(Westchester County, New York)

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PUBLIC health organization and activities have become so well standardized that where differences now exist they are rather of degree than of kind. Such functions as vital statistics, communicable-disease control, sanitation, public health nursing and child hygiene find a place in every program at all levels however rudimentary may be the efforts in some of the smaller local health organizations. Variations are apt to be dictated by economic factors and to a lesser extent by peculiar local problems.

Communicable-disease control on a county basis calls for the same types of activity and the same techniques that are employed in municipal health department practice. However, since funds and personnel are apt to be relatively more limited and travel distances greater in a county than in a city, health work can rarely be carried on as intensively in the former as in the latter. The more rural the county, the greater this disparity is apt to be. It follows that the more limited the resources the greater is the need of a nice discernment in employing them to the best advantage.

The Westchester County Health District is located in a relatively populous and wealthy suburban area in southern New York and includes all of the county except the three cities of Mount Vernon, New Rochelle and Yonkers to the south along the New York City line and the small city of Rye. It is bounded on the west by the Hudson River; on the east by Long Island Sound and the State of Connecticut; on the north by Putnam County (N.Y.) and on the south by the three cities previously mentioned. The District has an area of 457 square miles and a population of approximately 300,000. The southern part of the District is populated very largely by commuters who work in New York City while the northern portion is relatively rural with many estates and country homes and some farms. The municipal subdivisions include 16 towns and 22 villages and two cities the larger of which, White Plains (pop. about 40,000), is the County Seat and the location of the main office of the Health Department. There are also 5 branch offices in charge of supervising nurses from which groups of field nurses cover their respective areas. Hospital facilities for contagious diseases (44 beds) are provided by the County Hospital.

As is usually the case in health departments sufficiently large to justify such separation, tuberculosis and venereal-disease control are carried on as separate activities each under independent medical supervision. The activities

of the division of communicable diseases embracing all of the other notifiable infectious diseases (30) can be conveniently grouped under the following six conventional headings: case reporting; diagnostic service; routine case control measures; epidemiological investigation; immunization; education.

The last-mentioned heading can be dismissed with a very few words since activities of this nature are merged with those of the health education program of the department as a whole under a director of health education. Participation in that program consists of occasional talks on communicable diseases as opportunity offers and the preparation of news items and special articles on that subject for the newspapers. All of the literature on communicable diseases for distribution to the laity is supplied by the State Department of Health.

The State Sanitary Code governs the reporting and control of the communicable diseases. It provides that physicians shall report cases of communicable disease within 24 hours from the time they are first seen. Such reports are frequently made by telephone or by mail directly to the branch office concerned. Those that are received at the central office are referred to the appropriate branch office by telephone for routine control measures by one of the nurses. A control record slip for each case is sent by the nurse to the central office after the patient is released and the case closed. While the various school health services operate independently of the health department, close cooperation is maintained between the school and the health department nurses. This includes a printed notice to the school when a school child is confined to his home for a communicable disease as either a patient or a contact and again when he is released. At the present time routine control visits are made to cases of the following diseases: diphtheria; dysentery (bacillary); meningococcus meningitis; ophthalmia neonatorum; paratyphoid fever (*Salmonella paratyphi* A and B); poliomyelitis; scarlet fever; septic sore throat; typhoid fever. It will be observed that chickenpox, German measles, measles, mumps and whooping cough are not included in the foregoing list. German measles and mumps are not reportable in New York State. More important duties and lack of any appreciable results led to the discontinuance of routine control visits by nurses to all cases of chickenpox, measles and whooping cough. The diagnosis of chickenpox in individuals 15 years of age or over is still confirmed by a department physician, however, and complaints of inadequate control by the physician and family in any of these three diseases are investigated.

The routine control activities are best illustrated by following a case of communicable disease from its inception to its release. Let us suppose a case of scarlet fever to be handled under ideal conditions that seldom if ever exist. A child suddenly becomes feverish and complains of a sore throat. Possibly he vomits. Does his mother immediately call a physician? She probably does not but we will suppose that she does. The doctor's first diagnosis may be tonsillitis or sore throat but realizing the possibilities we will assume that he advises isolation and concurrent disinfection and holds the patient under observation. The following day on observing a scarlatiniform rash and furred tongue he makes his diagnosis of scarlet fever. Does he report the case promptly to the health department? We hope he does. When the report is

received the nurse who covers the locality in which the case is located is immediately notified and visits the home the same day or, if notified in the afternoon, not later than the following morning. At the first visit she instructs the mother regarding the regulations relative to scarlet fever, explains the proper isolation and concurrent disinfection and makes inquiries concerning a possible source of infection. She also asks about any especially intimate contacts in the patient's home or the home of a neighbor at the time the child was taken ill and after warning the parents of any such contacts, keeps them under observation without restriction for seven days from last contact. Should the patient be a school child, the nurse notifies the school authorities of the case and of any other school children in the household, all of whom must be quarantined.

WESTCHESTER COUNTY DEPARTMENT OF HEALTH COMMUNICABLE DISEASE CONTROL

Disease.....	
Case Record	
Routine Control Procedure	
Patient.....	Age.....
Address.....	Occup.....
Physician.....	Onset.....
Address.....	Date Doctor's 1st Visit.....
Hospitalized? When.....	Where.....
First Visit: Date..... Hour.....	Report Rec'd: Date..... Hour.....
Final Visit: Date.....	Slip Returned.....
Total number of visits to case and contacts.....	Signed.....
C. D. 4, 2-41-10M-17559	

FIGURE I

CONTROL RECORD SLIP USED BY NURSES IN ROUTINE COMMUNICABLE-DISEASE
CONTROL ACTIVITIES.

Should the patient remain at home for the required 21-day period of isolation, the nurse makes as many interim visits as she considers necessary to secure compliance with her instructions. When the time arrives for the release of patient and household contacts, she communicates with the attending physician to learn whether patient and contacts are in condition for release. Such being the case, she makes her final visit to instruct the mother regarding the necessary terminal disinfection, completes her control record slip and the case is closed. If the patient or a contact is a school child, the school authorities are notified of his release.

Should the patient be hospitalized because of the need for hospital care or because of inadequate facilities for isolation at home, the nurse visits the home following removal of the patient, to give instructions regarding terminal disinfection and to arrange for the continued quarantine of any juvenile contacts until seven days after the patient was removed.

Other possible lines of activity present themselves in the consideration of such a case. For example, the attending physician may desire a consultation with a department physician before making a final diagnosis. Or, as occasionally happens in a very mild case, the parents may be unable or unwilling to

call a private physician and the nurse may have to call on a department physician for a diagnosis. Should a physician withdraw from a case before the termination of the required period of isolation, the patient is examined by a department physician before being released by the nurse. Very infrequently a nurse may ask for assistance in enforcing the quarantine regulations.

Should the reporting of a circumscribed group of cases or the inquiries of the nurse suggest the occurrence of an outbreak due to a common mode of infection, an immediate investigation would be made by a department physician. Special attention would also be paid to a case of scarlet fever or other milk-borne disease on a dairy farm or to a case of scarlet fever involving a food handler or a school teacher.

Name Color Date of Birth
Address

Father's Name

Attendant at Birth

TOXOID			SCHICK			VACCINATION		COMM. DISEASES	
Date	Lot No.	Dose	Date Done	Date Read	Result	Date	Result		Date
								Diphtheria	
								Scarlet Fever	
								Measles	
								Pertussis	

I hereby request the prevention treatment for diphtheria and vaccination against smallpox for my child whose name appears above.

to be given: a. by Dr. Place

or

b. at Clinic

Signature Date

WESTCHESTER COUNTY DEPARTMENT OF HEALTH
CD7-5M-2-44-5884 William A. Holla, M. D., Commissioner

FIGURE II
IMMUNIZATION RECORD CARD.

Of the more common communicable diseases, detailed, epidemiological case investigations are limited to the following: diphtheria; dysentery (bacillary); ophthalmia neonatorum; paratyphoid fever (*Salmonella paratyphi* A and B); scarlet fever; trichinosis; typhoid fever; undulant fever. These investigations are usually initiated by a nurse who is assisted according to circumstances by a department physician. Outbreaks of acute gastro-enteritis or sore throat would receive the prompt attention of a medical investigator assisted by one or more nurses and inspectors.

A continuous program of immunization is carried on against diphtheria and smallpox. It is based upon visits by the public health nurses to the homes of children between 6 months and 5 years of age. A roster of such children is maintained from the birth registration records and from the annual school censuses conducted in the different villages and towns. Supplied with a list of children under 5 years of age in her community, not known to have been immunized, the nurse visits the home of each. Parents are urged to consult the family physician regarding immunization. Children in families that are obviously unable to afford the services of a private physician are immediately referred to a department clinic. Periodic inquiries are made by home visit,

telephone or mail regarding the other children until they are immunized, reach school age or their parents definitely refuse. If the family physician has not succeeded in immunizing a child after a reasonable length of time—in the case of an infant, by the time it reaches one year of age—and it appears impossible to accomplish this in any other way, the child may be referred to a department clinic.

That this program has been reasonably successful is shown by the fact that 72 per cent of the infant and pre-school population (6 months-4 years inclusive) have received the diphtheria immunization treatment and 54 per cent have been vaccinated against smallpox.

Immunization clinics are held at various places about the health district as needed at which children are treated with diphtheria toxoid and/or vaccinated. At present diphtheria toxoid (precipitated) is being administered in a single subcutaneous dose of 1 ml. This treatment has been found to render from 80-90 per cent of the children immune as shown by a subsequent negative Schick test. The Schick test is not, however, given routinely following immunization in a department clinic. With the present low incidence of diphtheria the results of this procedure appear to be satisfactory. Vaccinating is done by the multiple pressure method. Both types of immunization are frequently performed in opposite arms at the same visit with no ill effects and a considerable saving of time for all concerned.

The personnel in the central office directly concerned with communicable-disease activities include a medical director and a statistical clerk with additional part-time stenographic service. The field work is carried on very largely by members of the divisions of nursing and of sanitation. The director therefore not only has to administer his own branch of the department activities but also acts in an advisory and supervisory capacity to the divisions of nursing and of sanitation in so far as their personnel engage directly in communicable-disease control work. As the participation of the department nurses in the communicable-disease control program has to do very largely with routine control procedures in the home and the immunization of pre-school children, a manual of instructions has been prepared for the nurses dealing with the departmental administrative procedure set up for carrying on those functions. Working relations have been established with the division of sanitation with regard to the handling of dog-bite cases, cases of communicable disease on dairy farms and any outbreak of illnesses suggesting involvement of either a milk or a water supply.

It is only in the health departments of the larger cities and states or provinces that the communicable-disease activities can be grouped and carried on as a more or less separate entity. In the smaller departments a more elastic organization is necessary and the communicable diseases become the concern of the entire department in one way or another. The divisions of child hygiene, nursing, health education, sanitation and vital statistics all participate to a greater or lesser extent in the communicable-disease control program. Not the least of the duties and responsibilities of a director of such a program is the correlation of all of these related activities into an integrated and effective whole.

A Mouse Protection Test for Cholera Vaccine*

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FOR many years, mice have been extensively used for determining both the virulence of various types of bacterial cultures, and the protective efficacy of vaccines prepared therefrom. More recently, mucinized suspensions of certain bacteria have been shown to exhibit greater killing power for mice, which permits the virulence of cultures, and the antigenicity of vaccines, to be more accurately compared. This report describes a test for the antigenic power of cholera vaccine by demonstrating in vaccinated mice a high degree of resistance against a mucinized suspension of live *V. cholerae*.

Until just before the outbreak of the present war, a brief reference made by Fennel (1) 25 years ago to the fact that mice could be protected against 4 m.l.d. of *V. cholerae* by a single dose of cholera vaccine, appears the only recorded attempt to improve upon the cumbersome and unstandardized adaptations of Pfeiffer's phenomenon in guinea-pigs to the biological assay of the antigenicity of such vaccines. In 1938, Yu (2) employed mice to determine the virulence of saline suspensions of smooth strains of *V. cholerae*, and to show that vaccines prepared from highly virulent strains induced better protection. In 1942, Griffiths (3) described the enhancing effect of mucin upon the virulence for mice of some strains of *V. cholerae*. Shortly afterwards, a tentative procedure for assessing the mouse-protecting property of cholera vaccines was outlined by the National Institute of Health (4). After trial of this procedure, which entailed giving mice a single intraperitoneal dose of cholera vaccine, and challenging two weeks later with approximately 1 m.l.d. of a mucinized suspension of *V. cholerae*, Ranta and Dolman (5) pointed out that the results might be more clear-cut if a higher degree of protection were conferred by two spaced injections, so that more than one minimal lethal dose could be used as challenge. The experiments recorded in this paper substantiate that surmise. The test, as originally outlined, was further complicated by the requirement that the vaccinated mice be challenged with both Inaba- and Ogawa-type strains. This requirement is apparently superfluous.

EXPERIMENTAL METHOD

Preparation of Vaccine

All of the vaccines tested were prepared by the method described by Ranta and Dolman (5). For human use, these vaccines were standardized to contain 8,000 million vibrios per cc. For testing on mice, the vaccine as prepared for human injection was diluted 1:5 with physiological saline. All injections were given intraperitoneally, using a 26-gauge needle.

*Based on a paper presented at the twelfth annual Christmas meeting of the Laboratory Section, Canadian Public Health Association, held in Toronto, December 15 and 16, 1943.

Selection of Mice

Preliminary experiments showed inbred white mice of either sex to be suitable. In the earlier stages of the work, individual weight records kept on the mice under test showed that their weight did not significantly affect either their response to vaccination or their susceptibility to *V. cholerae*. This finding is contrary to the contention of Griffiths (3) that young white mice of 12-14 gm. only should be used.

For example, each of 30 mice weighing from 8.7 to 17.9 gm. (mean weight for the group, 12.8 gm.) was inoculated with a single dose of cholera vaccine. Two weeks later, when their weights ranged from 15.6 to 24.1 gm. (mean, 19.7 gm.), the mice were challenged with 3 m.l.d. of *V. cholerae*. Sixteen mice died, their post-mortem weights ranging from 15.3 to 22.8 gm. (mean, 18.7 gm.), while the 14 survivors weighed from 14.8 to 21.5 gm. (mean, 18.0 gm.). Each of 49 normal mice were inoculated as controls with a similar dose of 3 m.l.d. Their weights ranged from 11.5 to 30.5 gm. (mean, 20.6 gm.). Two of the smaller mice, weighing 12.8 and 14.1 gm., unaccountably survived. To verify the potency of the challenging dose used in this experiment, 10 normal mice weighing from 20.4 to 29.6 gm. (mean, 25.8 gm.) were each inoculated with 1 m.l.d. Of the two surviving mice, weighing 20.4 and 27.6 gm., one was again the smallest in the group.

On the basis of these and similar results, mice of 10 to 25 gm. initial weight were selected at random for immunization experiments, the only proviso being that the progeny of female mice previously used for testing cholera vaccine must be excluded, lest inherited immunity should occasion false results.

Challenging Dose

The strain of *V. cholerae* which proved most lethal for mice, among those available in this laboratory, was an Ogawa-type. This was selected for challenging purposes.* Its high virulence was maintained by successive isolations from the heart blood of mice used as experimental controls. Between passages it was kept at room temperature on beef infusion agar slants at pH 8.3. For over two years, approximately 500,000 living vibrios of this strain, suspended in 0.5 cc. of 5 per cent mucin, consistently proved 1 m.l.d., i.e. killed from 80 to 100 per cent of normal mice injected therewith.

When a challenge was to be conducted, the strain was seeded to a freshly made beef infusion agar slant at pH 8.3, and incubated overnight at 37°C. Next morning, a subculture was made to a similar slant, and incubated for 5 hours. The resulting growth was harvested, and diluted with physiological saline to match a 500 p.p.m. silica turbidity standard. From this standardized vibrio suspension an appropriate series of dilutions was made, ending in 1:1000, using physiological saline for the preliminary dilutions, and 5 per cent mucin in saline, prepared as described by Griffiths (3), for the final dilution. In repeated tests, 0.5 cc. of the 1:1000 dilution of this particular strain represented 1 m.l.d.

In each experiment, mouse deaths were recorded every 24 hours, for three days. The majority of deaths occurred during the first overnight period. Among nearly 700 mice succumbing to cholera, 94 per cent died during the first 24 hours after administration of the fatal dose, while 4 per cent died during

*Subsequently it was shown that no separate challenge with Inaba-type vibrios is necessary, since in vaccinated mice a high degree of Inaba-Ogawa cross-protection could be demonstrated. (*Vide infra*.)

the second 24-hour period. No deaths occurring more than 72 hours after inoculation were found due to *V. cholerae*.

MOUSE PROTECTION BY SINGLE AND MULTIPLE DOSE VACCINATION

In order to compare the mouse-protecting efficacy of one, two, and three doses of vaccine, three groups of mice were inoculated intraperitoneally with a pooled cholera vaccine. The first group received at weekly intervals three doses of 0.25, 0.5, and 0.5 cc. of a 1:5 dilution of vaccine containing 8,000 million vibrios per cc.; the second group received 0.25 and 0.5 cc., given one week apart, of the same vaccine; while the third group received a single dose of 0.25 cc. The experiment was so planned that all the mice received their final dose of vaccine on the same day. A fortnight later all animals were challenged with a known number of m.l.d. of mucinized *V. cholerae*, prepared as described in the preceding section.

The results are summarized in Table I. When challenged with 3 m.l.d.,

TABLE I
COMPARISON OF MOUSE PROTECTION CONFERRED BY
ONE, TWO AND THREE SPACED DOSES OF CHOLERA VACCINE

Challenging Dose	Vaccine injections (weekly intervals)			Controls
	Three	Two	One	
3 m.l.d.	25/25*	25/26	12/29	0/30
1 m.l.d.	—	—	13/15	2/10

*Number of survivors/Number challenged.

there were no deaths among 25 mice in the first group, and only one death among 26 in the second group. On the other hand, of 44 mice receiving a single dose of vaccine, 29 were challenged with 3 m.l.d., and only 12 survived; while of 15 challenged with 1 m.l.d., 13 survived. In the control group, of 30 mice receiving 3 m.l.d., none survived; while two of 10 mice survived 1 m.l.d.

The results of this and other experiments indicated that the resistance derived from single-dose vaccination was not of such an order as to permit challenging with several m.l.d. of *V. cholerae*. The two- and three-dose methods, on the other hand, obviously induced a relatively high degree of resistance. Accordingly, attempts were made to determine whether the extra time involved in the three-dose method was warranted in view of any markedly higher level of acquired resistance. In a representative experiment, of 54 mice given two doses of vaccine, and challenged with 10 m.l.d., 34 survived; while of 21 mice given three doses of vaccine, and similarly challenged, 14 survived. Such findings were held to indicate that the three doses did not induce significantly greater resistance than did the two doses. The latter method was therefore provisionally adopted, and submitted to further investigation.

Limits of Protection Conferred by Two Spaced Doses of Vaccine

The two-dose method of vaccination having been chosen, the size of the challenging dose now required consideration. As stated earlier, 1 m.l.d. of mucinized vibrios was consistently represented by 0.5 cc. of a 1:1000 dilution of the standardized suspension of the selected strain. Such designations as 3, 5 and 10 m.l.d. respectively have been applied throughout this paper to 0.5 cc. amounts of the 1:333, 1:200, and 1:100 dilutions of the vibrio suspension. These dosages probably imposed much more than three, five or ten-fold the challenge entailed by 1 m.l.d., but the above terms seemed conveniently to express three, five or ten times the numbers of *V. cholerae* present in 1 m.l.d.

Each of 137 mice was given 0.25 cc. and 0.5 cc. of pooled cholera vaccine, diluted 1:5, one week elapsing between doses. Two weeks after the final dose, the mice were divided into four groups and challenged with 3, 5, 6, and 10 m.l.d. respectively of mucinized vibrios. The results are set forth in Table II. Of

TABLE II
DEGREE OF PROTECTION CONFERRED ON MICE BY TWO SPACED
DOSES OF CHOLERA VACCINE

Vaccinated				Controls
3 m.l.d.	5 m.l.d.	6 m.l.d.	10 m.l.d.	1 m.l.d.
53/53*	20/20	20/20	34/54	2/20

*Number of survivors/Number challenged.

53 mice challenged with 3 m.l.d., 20 with 5 m.l.d., and another 20 with 6 m.l.d., all survived; while 34 survived among 54 challenged with 10 m.l.d. In the control group, of 20 mice given 1 m.l.d., two survived.

The vaccine employed in this experiment was prepared 14 months previously. This particular lot was used because the customary effect of age was deemed likely to have brought about a decline of antigenic potency to near the lower levels of acceptability. Survival of only 63 per cent of mice receiving 10 m.l.d. suggested that this might be taken as the limiting challenge for mice given two spaced injections of any cholera vaccine under test. In order to reveal more clearly the lesser degrees of resistance liable to be evoked by a vaccine of poor antigenic quality, it would also seem desirable to submit some of the vaccinated mice to a challenge of say 5 m.l.d.

STABILITY OF MOUSE-PROTECTING EFFICACY OF VACCINES

The foregoing method has been used to test numerous lots of phenol-killed pooled cholera vaccine at various times after preparation. Using groups of at least 12 immunized mice for each test, vaccines up to 14 months of age induced complete protection against 5 m.l.d., while protection against 10 m.l.d. was shown by more than 80 per cent of mice given vaccines prepared up to

10 months previously. A 26-months-old vaccine protected 14 out of 17 mice, or 82 per cent, against 5 m.l.d.; and 15 out of 18, or 83 per cent, against 10 m.l.d. Another vaccine, which when 7 months old had conferred complete protection against 5 m.l.d., and had protected 12 of 13 mice against 10 m.l.d., was retested 31 months after manufacture. Only 17 of 21 mice, or 81 per cent, were now protected against 5 m.l.d., and only 12 of 20 mice, or 60 per cent, against 10 m.l.d. The results summarized in Table III therefore suggest that these vaccines retained undiminished protective efficacy for mice for about one year, after which a slow decline of potency became apparent. Such results are in accord with the antigenic stability of other bacterial vaccines. This statement holds notwithstanding the fact that phenol-killed cholera vaccine appears subject to an unusual degree of autolysis, when stored at 5°C. If kept at room, or warmer temperature, the rate of autolysis is greatly accelerated, as reported

TABLE III

MOUSE PROTECTION CONFERRED BY CHOLERA VACCINE OF DIFFERENT AGES AGAINST 5 AND 10 M.L.D. OF *V. CHOLERAE*

Challenging Dose	Age of Vaccine							
	1 week	5 mos.	7 mos.**	9 mos.	10 mos.	14 mos.	26 mos.	31 mos.**
5 m.l.d.	15/15*	16/16	12/12	15/15	20/20	20/20	14/17	17/21
10 m.l.d.	14/15	16/16	12/13	12/15	19/23	34/54	15/18	12/20
CONTROLS								
1 m.l.d.	1/10	0/11	0/10	2/10	2/10	2/20	2/11	4/10

*Number of survivors/Number challenged.

**These two tests relate to the same lot of vaccine.
All other tests performed on separate lots.

by Raju (6). Shortly after being harvested, the vaccines under investigation were standardized to a turbidity midway between freshly prepared McFarland's Nos. 4 and 5 standards. During the first month or two, a fairly rapid autolysis of the vibrios reduced the turbidity to around McFarland's No. 4 standard. Thereafter the rate of autolysis decreased, so that by the end of the first year the turbidity matched McFarland's No. 3 standard, at which level it seemed to remain, provided the vaccine was stored at about 5°C.

The results set forth in Table III suggest that such moderate reductions in turbidity are not necessarily associated with significant losses of antigenic potency. Preliminary attempts to throw light on the part played in mouse protection by different fractions of *V. cholerae* indicate that the soluble portions of autolyzed vibrios retain some antigenic power. Fairbrother (7) has also demonstrated some degree of protection induced in guinea-pigs by inoculating the supernatants of centrifuged, phenolized vaccines.

However, the findings suggest that the dating of cholera vaccine should not extend beyond two years. Apart from this age limitation, it would seem sound

to require that all lots, prior to release, should exhibit a high degree of mouse-protecting efficacy. *The arbitrary standards of antigenic potency recommended are that each vaccine should be tested, by the method described, on not less than 30 mice, one half of which are subsequently challenged with 5 m.l.d., and the other half with 10 m.l.d., of mucinized vibrios. Of the former groups, 100 per cent, and of the latter group, at least 80 per cent, should survive.*

In vaccinating mice, it was noted that occasionally a small drop of vaccine exuded from the puncture wound. In order to determine whether such loss might affect the test, each of three groups of 20 mice received two doses of vaccine diluted 1:5, 1:7.5, and 1:10 respectively. Two weeks after the final dose, half of the mice in each group were challenged with 5 m.l.d., and the remainder with 10 m.l.d. As usual, the m.l.d. was verified on control mice. All of the vaccinated mice, including those which had received only one-half the usual dosage of vaccine, withstood the challenge. Minor errors in the dosage of vaccines given in the test, due to whatever cause, are thus without significant effect.

THE MECHANISM OF MOUSE PROTECTION BY CHOLERA VACCINE

Certain theoretical objections could be raised to the use of the same intraperitoneal route for administration of the vaccine and the challenging dose. For instance, a state of "local immunity," sufficient to immobilize and destroy the *V. cholerae* in the challenge dose, might be held to account for the resistance developed by the vaccinated mice. Or a reduced permeability of the peritoneum, due to a low-grade peritonitis set up by foreign proteins in the preliminary injections of vaccine, might give results simulating the acquisition of specific immunity. However, such alternative explanations are invalidated by findings which indicate that cholera vaccine evokes a true immunity in mice, with production of circulating antibodies.

In one experiment, 3 m.l.d. of *V. cholerae* were administered intraperitoneally to the unvaccinated offspring of female mice which had themselves survived 3 m.l.d. after being vaccinated and challenged prior to mating. Of 20 mice, eight weeks old, 12 survived. This result must be ascribed to the passive transmission of specific humoral antibodies from parent to offspring. In another experiment, groups of mice which had received their injections of vaccine subcutaneously showed as good protection against 5 and 10 m.l.d. of *V. cholerae* administered intraperitoneally as did similarly-challenged mice which had been vaccinated by the intraperitoneal route. The contention that cholera vaccine causes humoral antibody development in mice is further supported by a recent report of Griffiths (8) that the sera of vaccinated humans contain antibodies which protect mice against *V. cholerae*.

INABA-OGAWA CROSS PROTECTION

Both Inaba- and Ogawa-type strains have been used in the manufacture of the pooled cholera vaccines under investigation. However, if mouse immunization depended upon type-specific "O" antigens, vaccinated mice might

exhibit different degrees of protection against challenging doses of Inaba- and Ogawa-type vibrios. In one representative experiment, designed to determine whether the mouse protection test should involve challenging with both Inaba- and Ogawa-type vibrios, each of 50 mice was inoculated with the prescribed two doses of vaccine prepared from a single Inaba-type strain. A fortnight after the final dose, half of this vaccinated group was challenged with 10 m.l.d. of the Inaba-type strain, and half received 10 m.l.d. of an Ogawa-type strain. A similar number of mice, inoculated with two doses of Ogawa-type vaccine, were divided into two groups, which were challenged with a 10 m.l.d. of Inaba- and Ogawa-type vibrios respectively. All of the vaccinated mice survived.

These results do not necessarily imply that type specific "O" antigens play no part in mouse protection. But they clearly point to a degree of Inaba-Ogawa cross-protection in mice sufficiently high to eliminate the need for challenging with both type strains, and hence to validate the choice of a virulent Ogawa-type strain for conducting all challenges.

COMMENTS

The proposed test may be criticized on the score of its failure to employ the 50 per cent mortality end-point, the importance of which was emphasized by Gaddum (9). The 50 per cent end-point principle is undoubtedly sound where the objective is to minimize the statistical weighting intruded into results by test animals failing to give an average response. Its main immunological application is in the field of *in vivo* titration. The test in question is not advocated as a means of quantitatively assaying the antigenicity of cholera vaccine, but rather as a simple method of assuring that vaccines to be released for human use should exhibit a certain minimal immunizing capacity for mice. In other words, the main objective of the test is to be sufficiently stringent to eliminate any vaccine which fails to protect mice against the arbitrarily selected challenge, while making little or no allowance for animals inherently unable to respond to the antigenic stimuli from two doses of the vaccine.

Workers who have used cholera vaccine in countries where the cholera risk is high, appear convinced of the value of vaccination. The possibility of widespread dissemination of this disease during and after the war, makes a satisfactory and simple antigenic test for cholera vaccine urgently desirable. The extent to which results obtained with mice relate to human infection and immunity is largely conjectural, and the mouse protection test described for cholera vaccine is no exception to this generalization. But the standards proposed certainly entail development by the mice of a very effective degree of immunity. Moreover, some relationship between human and mouse protection is suggested by Griffiths' demonstration (8) that humans, inoculated with cholera vaccines comparable to those studied by us, quickly develop circulating antibodies capable of conferring passive protection upon mice. Final proof of such a relationship must await first, conclusive, controlled demonstrations in epidemic areas of the value of vaccination; and secondly, determinations of the average titres of mouse protective antibody in human sera below which cholera

is liable to develop. Initial and reinforcement dosages of cholera vaccine could then be less arbitrarily recommended. Meanwhile, despite the present looseness of analogy between *V. cholerae* septicaemia in mice and human cholera, the described test seems much better than none at all, and is at least no more fallacious than many biological tests currently in vogue in other fields.

SUMMARY

1. Administration of a single dose of cholera vaccine to mice produced too little protection to permit challenging with more than 1 m.l.d.

2. A test employing two spaced doses of vaccine is proposed, requiring survival of 100 per cent of a group of not less than 15 mice challenged with 5 m.l.d. of mucinized vibrios, and at least 80 per cent of a group challenged with 10 m.l.d.

3. Performance of this test on numerous separate lots of phenol-killed pooled cholera vaccine of various ages, showed that a high degree of mouse-protecting efficacy was retained for about one year, while no serious loss occurred within two years of manufacture.

4. The mouse protection resulting from intraperitoneal injections of cholera vaccine is an example of true humoral immunity.

5. The demonstration of cross-protection between Inaba- and Ogawa-type strains of *V. cholerae* obviates the need to challenge vaccinated mice with both type strains.

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Mortality Reductions in Ontario, 1900-1942

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MUDDLING along, as we are, it is common practice to re-orient ourselves periodically in relation to the past, measure our progress, if any, and re-examine our objectives. The term "muddling" is not used in a derogatory sense or with intent of criticism of the present or the past; nor does it imply that the existing public health structure is faulty and should be wrecked and re-built. It is but a term somewhat descriptive of conditions that have existed or exist because they were or are inescapable for a time, being inherent in the scheme of things. Official public health departments as we know them to-day are of very recent development in the scheme. They did not begin at the beginning, but, as they came into being, one after another, they assumed responsibilities for functions which, in some form, had been carried on for decades and centuries and ages by the family, the community, the tribe, and the sect, by charity, organized or unorganized, by other governmental departments of earlier development, other agencies, etc. Had *our* public health departments existed at the beginning and been responsible for the scheme of things, they might have had no disease and no untimely death in the plan. Had they been of early development when populations were small and life of a more simple order, if life ever really were of a more simple order, they might have functioned in a different way and have encompassed in their field all the health and all the disability and all the conditions which influence health favourably and unfavourably. But they came late and inherited from the past not only diversified functions and responsibilities but traditional restrictions and limitations and, too, practices dictated by expediency and compromise, all as part of our common human lot. They inherited, as well, a vast amount of disease and untimely death. They did *not* inherit any superhuman capacity to alter the scheme of things or any special privilege to act as agents freed from the bonds of human relationships and considerations. From their late beginning, official public health agencies have broadened, attacking major problems as they became manifest, as necessity required, as public opinion demanded or allowed, as time and circumstances permitted, sometimes acting on sound professional advice and sometimes harassed by that malign influence, the misguided propagandist, promoter and publicist motivated by commercial, political or personal considerations or even by ill-founded enthusiasm based on bias and misconceptions. With what results, we may ask—in so far as untimely mortality in the Province of Ontario is concerned.

The answer, in part, is found in the accompanying table and illustration. In the illustration, age specific mortality rates in Ontario from 1900-42, as plotted on semilog paper, have been transposed and are arranged in order of

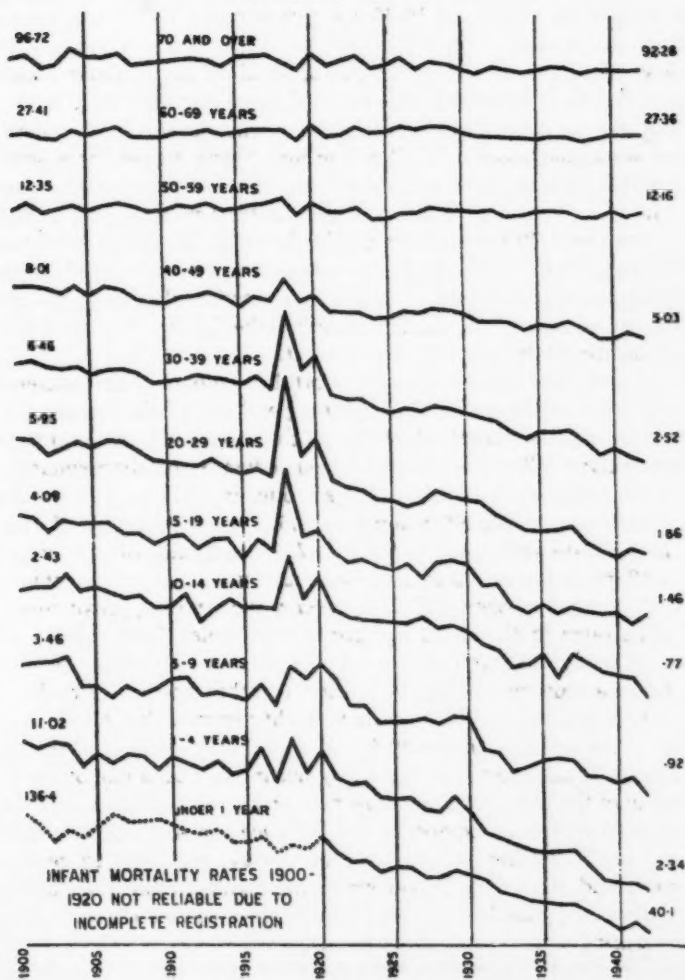
age, not, it is to be noted, of magnitude, so that direct comparison of the rates of change rather than of the absolute changes in the various age groups is facilitated.

MORTALITY RATES PER 1,000 FROM ALL CAUSES—ONTARIO

Year	Under 1	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-59	60-69	70 +
1900.	136.4	11.02	3.46	2.43	4.09	5.95	6.46	8.01	12.35	27.41	96.7
1901.	120.0	10.38	3.54	2.48	3.91	5.82	6.67	8.25	13.47	27.83	101.26
1902.	103.9	10.93	3.55	2.47	3.42	5.06	6.36	8.15	12.25	26.41	89.54
1903.	113.9	10.48	3.74	2.82	3.82	5.44	6.18	7.79	12.80	26.50	93.93
1904.	106.0	8.57	2.78	2.38	3.70	5.79	6.36	8.24	13.22	28.80	109.57
1905.	119.5	9.63	2.79	2.47	3.74	5.43	5.85	7.49	12.46	27.57	101.08
1906.	135.6	8.68	2.51	2.30	3.71	5.85	6.11	8.23	13.26	28.77	100.34
1907.	124.2	9.58	2.81	2.21	3.37	5.80	6.24	8.03	13.44	29.92	104.67
1908.	125.6	9.33	2.57	2.26	3.36	5.32	5.92	7.37	13.05	27.22	93.94
1909.	129.7	8.12	2.72	2.00	3.02	4.80	5.40	7.10	12.50	27.10	95.00
1910.	121.4	9.27	3.01	2.01	3.23	4.70	5.50	7.02	12.60	27.20	97.00
1911.	114.5	8.64	3.04	2.30	3.28	4.60	5.60	7.50	13.20	28.10	98.50
1912.	110.3	8.14	2.55	1.70	2.88	4.50	5.89	7.60	13.00	28.10	100.00
1913.	117.7	8.88	2.63	1.95	3.14	4.84	5.70	7.90	13.50	29.10	98.00
1914.	103.2	7.75	2.56	2.15	3.19	4.40	5.60	7.50	12.60	27.70	93.00
1915.	102.0	8.07	2.46	1.98	2.56	4.20	5.40	6.80	12.70	28.60	101.00
1916.	107.3	10.32	2.89	1.99	3.17	4.40	5.80	7.50	13.40	29.30	103.00
1917.	92.4	6.96	2.37	1.96	2.80	4.10	5.10	7.20	13.50	29.30	103.00
1918.	98.9	11.18	3.42	3.38	6.29	11.10	11.11	9.00	14.20	29.10	97.00
1919.	95.6	7.88	3.05	2.15	3.27	5.00	6.20	7.30	12.00	26.60	90.00
1920.	107.6	9.99	3.55	2.74	3.49	5.90	7.20	7.70	13.70	30.40	104.00
1921.	91.2	7.43	3.01	1.92	2.75	3.90	4.80	6.60	12.50	27.30	95.00
1922.	83.0	6.95	2.31	1.78	2.47	3.60	4.60	6.50	12.20	27.80	99.00
1923.	84.9	7.00	2.30	1.73	2.51	3.50	4.60	6.50	13.00	30.40	103.00
1924.	75.8	6.01	1.94	1.71	2.37	3.20	4.20	6.10	11.50	28.50	93.00
1925.	78.9	5.90	1.98	1.69	2.28	3.20	4.00	6.20	11.50	28.70	95.00
1926.	78.4	6.06	1.98	1.68	2.42	3.00	4.20	6.60	12.10	30.40	101.00
1927.	71.1	5.34	2.03	1.77	2.11	3.10	4.10	6.50	12.10	29.70	92.00
1928.	71.2	5.27	1.96	1.60	2.49	3.50	4.30	6.80	12.90	30.40	98.00
1929.	76.0	6.13	2.10	1.64	2.53	3.30	4.20	6.70	12.50	30.10	97.00
1930.	73.8	5.20	2.08	1.53	2.43	3.20	4.00	6.50	12.40	28.80	92.00
1931.	69.8	4.23	1.50	1.34	1.95	3.11	3.84	5.99	12.21	27.50	88.13
1932.	61.8	3.98	1.46	1.27	1.99	2.78	3.71	5.96	12.52	27.61	94.83
1933.	59.8	3.74	1.20	1.07	1.53	2.57	3.36	5.98	11.67	27.07	91.07
1934.	56.6	3.47	1.26	1.09	1.46	2.37	3.14	5.59	11.81	27.02	89.89
1935.	55.7	3.42	1.35	1.22	1.59	2.33	3.33	5.80	12.10	26.54	91.39
1936.	54.7	3.46	1.39	.97	1.44	2.37	3.33	5.72	12.28	27.31	94.56
1937.	54.9	3.50	1.36	1.22	1.56	2.49	3.40	5.96	12.19	27.33	93.86
1938.	49.5	2.98	1.14	1.11	1.47	2.09	3.01	5.58	11.66	26.00	89.47
1939.	46.4	2.58	1.14	1.01	1.43	1.91	2.69	5.09	11.62	27.02	92.97
1940.	43.2	2.53	1.07	.98	1.45	1.79	2.84	5.11	12.26	27.56	92.60
1941.	45.6	2.57	1.13	.96	1.34	1.90	2.67	5.28	11.89	27.36	91.78
1942.	40.1	2.34	.92	.77	1.46	1.86	2.52	5.03	12.16	27.36	92.28

Considering only the general lie of the lines and disregarding for this occasion the shorter and more abrupt deviations, the peaks of which are due in the main to "influenza", it is at once apparent that the mortality rate in those of 70 years and over has maintained its level for this 42-year period. As all men must die, this is only to be expected; death being a physical necessity, it is quite impossible to reduce the mortality rate in old age to a constantly lower level; any temporary reduction must be followed by an increase. Death in old age is timely death. Reduction in the rates in other

MORTALITY RATES IN AGE GROUPS
ONTARIO, 1900-1942



The accuracy of the rates naturally depends on the accuracy of enumerations and estimates of population in the various age groups and on the degree of completeness of registration of births and deaths. Mrs. M. R. Richardson of this department has been at pains to check these data and has indicated that particularly in the under 1 age-group in which the mortality rates have been calculated as the number of deaths per 1,000 live births rather than on the actual population enumerations or estimates, comparisons must be made with reservations. As birth registration in the earlier years was somewhat less complete than death registration, it is possible that infant mortality in that period might have been lower than the rates show. As complete correction cannot be made, the rates previous to 1920 are shown in a dotted line to indicate some lack of comparability with the later years. Mr. J. T. Marshall, Chief of the Vital Statistics Branch, Dominion Bureau of Statistics, has similarly intimated that neither birth nor death registration has been entirely complete and that both have improved over the years. He considers, however, that the changes have not been such as to invalidate the *gross* comparisons and estimates of reductions made here.

age groups is a reasonable objective or hope. However desirable reduction in mortality in the 60-69 and 50-59 age groups might be though, the rates do not show any decline. The fact that there has been no increase in total mortality rates in these age groups, in spite of all the clamour about heart disease and cancer, is worthy of re-emphasis and is gratifying. In the 40-49 age group the rates fall distinctly from the earlier level. In the 30-39 group they fall somewhat more. In all age groups below 30 the rates show even more marked declines, and in general tend to be nearly parallel with each other. In other words, in summary, there has been no reduction in mortality rates in those over 50 years of age but in the 40-49 age group there has been a definite reduction; in the 30-39 age group, a more marked reduction; and in the groups under 30 years of age, a still more marked and, for practical purposes, an equal rate of decline affecting the infant, the pre-school and school child, the adolescent and young adult.

How much have these declines in mortality amounted to? Reference to the figures in the table and at the beginning and end of the lines in the illustration allows a quick mental calculation of the extent. The rates in the under 1 age group have fallen from 136 to 40—a reduction of approximately two-thirds of the earlier rate; in the 1-4 age group, from 11 to 2.3—a reduction of over two-thirds; in the 5-9 group from 3.5 to .9—a reduction of over two-thirds; in the 10-14 age group, from 2.4 to .77—a reduction of over two-thirds; in the 15-19 group from 4.09 to 1.46—a reduction of close to two-thirds; and in the 20-29 age group from 5.95 to 1.86—a reduction of approximately two-thirds. The rates in the 30-39 age group have fallen from 6.46 to 2.52, a reduction of somewhat more than one-half and in the 40-49 age group, from 8.01 to 5.03—a reduction of fully a third. In other words, life to-day in its first 30 years has only one-third of the mortality hazard that obtained at the beginning of the century, in the 30-40 age group only one-half of the hazard, and in the 40-50 age group the mortality hazard has been cut by one-third.

Mindful of the fact that to-morrow may bring new problems, a recurrence of the 1918-20 influenza experience for instance, or some other disturbing factor, and not forgetting either that even to-day, one hundred generations having come and gone since David wrote the Psalms, more than half of all our mortality is supplied by age groups under three score and ten, it is nevertheless reassuring to have such gains as these.

"Muddling along", it may be, but a period of little more than a generation, showing in that time a two-thirds reduction in mortality in all age groups under 30 years, a reduction of more than one-half in the 30-39 age group and a reduction of one-third in the 40-49 age group, has something to its credit—or does the credit rightly belong to the scheme of things?

Canadian Journal of Public Health

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THE NEW DEPARTMENT OF NATIONAL HEALTH AND WELFARE

SPEAKING briefly on the occasion of the annual meeting of the Canadian Public Health Association in Toronto on November 7th, just a few days after the announcement of his appointment as Minister of National Health and Welfare, the Honourable Brooke Claxton expressed as the ultimate purpose of his department the desire that "Canadians may be the healthiest people in the world". In his first public address as Minister, Mr. Claxton defined, in simple but inclusive words, the goal towards which the Department will strive, using both the statutory and other functions of the former health department and the new resources which the creation of the Welfare division will afford. The Canadian Public Health Association, like the Canadian Medical Association and other professional bodies, was gratified that the Government named the department the "Department of National Health and Welfare". The inclusion of "national health" in the title focuses attention on health, and the first words of the Minister give encouragement to the belief that Canada will have a department of government fully aware of the need of according health its rightful place.

Among the resolutions passed at the annual meeting* were resolutions the implementing of which the Association believes would help to assure the development of a sound Federal Department of Health—a department which not only will be adequate for the performance of those duties which are specifically the function of the Federal Department, but which also will lead in co-operative undertakings with the Provinces for the advancement of health throughout the Dominion. The Association again stressed the importance of grants for public-health work to assist the Provinces in the establishment of full-time health services, in the control of tuberculosis and the venereal diseases, in the prevention of mental illness and the care of those so afflicted, and in other special fields which call for urgent action.

All measures for social security are, fundamentally, directed towards the health of the people. All can understand and appreciate the objective of the new department, and all can contribute to making Canadians "the healthiest people in the world". In this the Canadian Public Health Association pledges its utmost co-operation.

*See page 486 of this issue.

RESOLUTIONS ADOPTED AT THE THIRTY-THIRD ANNUAL
MEETING OF THE CANADIAN PUBLIC HEALTH ASSO-
CIATION, HELD IN THE ROYAL YORK HOTEL,
TORONTO, NOVEMBER 6-8, 1944

THE Committee on Resolutions, comprising Dr. C. W. MacMillan, Fredericton (chairman), Dr. C. J. W. Beckwith, Sydney, Dr. D. V. Currey, St. Catharines, Dr. R. D. Defries, Toronto, Dr. Adélard Groulx, Quebec, Dr. G. M. Little, Edmonton, and Miss Helen McArthur, Edmonton, presented the following resolutions, which were adopted by the Canadian Public Health Association during its thirty-third annual meeting, held in Toronto on November 6th, 7th and 8th.

WHEREAS the practice and administration of public health have become a specialty within the practice of medicine for which more and more physicians are specially trained and in which they can pursue life-time careers, and

WHEREAS the safeguarding and the improving of the health of the people have always been a primary concern of the medical profession and their responsibilities in this field are so important that it has attracted and should continue to attract some of the ablest members of the profession, and

WHEREAS the Royal College of Physicians and Surgeons of Canada is approving for certification as specialists the following fields: anaesthesia, dermatology and syphilology, ophthalmology, otolaryngology, paediatrics, radiology, urology, obstetrics and/or gynaecology, internal medicine, general surgery, orthopaedic surgery, and neurology and/or psychiatry; and has established standards leading to such certification; and

WHEREAS a Diploma in Public Health or equivalent, or a defined period of experience, is a qualification for full-time employment in public health,

BE IT RESOLVED that the Canadian Public Health Association request the Royal College of Physicians and Surgeons to include public health as one of the special fields for certification.

BE IT RESOLVED that the Canadian Public Health Association express to the Federal Government its appreciation of the action taken in designating the newly-established department as the "Department of National Health and Welfare", believing that this action is evidence of the Government's realization of the fundamental importance of health in the development of the national economy.

WHEREAS the application and administration of public health principles and skills has become a specialty for which special training is required, and

WHEREAS the safeguarding and improving of the health of the people have always been primary concerns of the State, and

WHEREAS public health workers have often devoted their lives to this field at great personal sacrifice, and

WHEREAS there is an urgent need throughout Canada for trained public health workers serving on a full-time basis, and

WHEREAS the post-war period will call for even larger numbers of competent persons to safeguard the public health, and

WHEREAS adequate remuneration and reasonable security in tenure of office are necessary before public health workers with proper qualifications will be available in sufficient numbers to meet the existing and future needs,

BE IT RESOLVED that it is the considered opinion of this Association that health officers and all other specialists in the public health field who have been specially trained for their highly important work should be compensated for their services in a manner comparable with the net income of their specially trained professional colleagues.

WHEREAS the new Department of National Health and Welfare is now being organized,

BE IT RESOLVED that the Canadian Public Health Association urge upon the Federal Government more adequate appropriations for the maintenance of the established divisions and such new divisions as may be established in the department, to the end that Canada may have a Department of National Health able and equipped to fulfil its present functions and to lead in the development of programs for the improvement of health throughout the Dominion.

WHEREAS in the recent Act establishing the Department of National Health and Welfare, the Department is empowered to further investigation and research in public health and welfare, and

WHEREAS the Laboratory of Hygiene, established in the Department of Health from its inception in 1920, has rendered outstanding service in Canada, both in the discharge of its responsibilities under the Food and Drugs Act and in the conduct of field and laboratory investigations, and

WHEREAS the extent of the contribution has been greatly limited by the available laboratory facilities and by the allocation made for the support of the work,

BE IT RESOLVED that the Canadian Public Health Association express to the Minister of National Health and Welfare its appreciation of the work which has been accomplished and voice the hope that the Laboratory of Hygiene may be extended to contribute more adequately to investigation and research in public health.

WHEREAS there is urgent need for leadership in public-health education throughout Canada, and the Division of Health Education in the Federal Department of Health was discontinued in 1940,

BE IT RESOLVED that the Canadian Public Health Association request the Minister of Health that consideration be given to the re-establishing of this division.

FURTHER, this Association is convinced that such a division can render effective services only if placed under the direction of an exceptionally well-qualified, trained specialist, with adequate staff.

WHEREAS the Government of Canada has forwarded plans for improvements in housing, and

WHEREAS health is one of the most important provisions in the consideration of housing,

BE IT RESOLVED that the Department of National Health and Welfare be requested to provide in its organization for the participation of the department in the forwarding of plans for adequate housing in Canada.

WHEREAS the provision of a more effective type of public-health service at the community-level is an urgent requirement throughout the Dominion, and WHEREAS the provision for such local public health services for the entire Dominion is an essential prerequisite to any logical expansion in the fields of health and welfare,

BE IT RESOLVED that the Canadian Public Health Association petition the Dominion Government to make available to the provinces at the earliest possible moment grants to assist in the establishment of local health services through full-time health departments.

BE IT RESOLVED that the Canadian Public Health Association express its appreciation to the Dominion Government of the leadership being extended by the Dominion Bureau of Statistics, and in particular the Vital Statistics Branch, in the development of plans whereby the Provincial Registrars-General will be able to meet adequately their increased obligations consequent on the introduction of planned measures for social security.

WHEREAS it is the policy generally of municipalities throughout Canada to discharge sewage, trade wastes and other waste products into rivers and lakes used for domestic water supplies, creating a constant menace to health,

BE IT RESOLVED that the Canadian Public Health Association reaffirm that the continuance of such a policy may be the source of serious outbreaks of disease, and that every encouragement should be given to the development of plans for the more effective disposal of such waste products.

WHEREAS the detection of open cases of tuberculosis, which are an immediate menace to the public, and the finding of early cases of tuberculosis have been made possible by the use of X-ray chest films in large-scale surveys at a cost which now is no deterrent to the procedure,

BE IT RESOLVED that this Association urge upon public health authorities the use of this method of case-finding in tuberculosis and so contribute to the further control of this disease in Canada.

WHEREAS recent cheese-borne epidemics of typhoid fever in several Provinces and States have again emphasized the importance of new cheese as a vehicle for such infection,

BE IT RESOLVED that the Canadian Public Health Association recommend to the Dominion Department of Agriculture that all cheddar cheese should be required to be held for a period of three months before being sold for public consumption.

BE IT RESOLVED that the Canadian Public Health Association express to The Rockefeller Foundation its appreciation of the Foundation's further interest in Canada as evidenced by the establishment of a Canadian office, and that we extend to Dr. W. A. McIntosh a most cordial welcome.

WHEREAS the Canadian Public Health Association anticipates an increasing demand for public health services throughout Canada, and

WHEREAS experience has proved that special training of public-health personnel is a prerequisite to a satisfactory understanding and appreciation of public-health problems,

BE IT RESOLVED that the Canadian Public Health Association again expresses its belief that it is essential that only persons qualified by special training and experience be appointed to technical positions in all fields of public-health work, and

BE IT RESOLVED FURTHER that copies of this resolution be brought to the attention of the federal, provincial and municipal departments of health.

RESOLUTIONS—PUBLIC HEALTH NURSING SECTION

WHEREAS discrimination against the married public-health nurse with reference to employment has existed in the past, and

WHEREAS married nurses have contributed substantially to the maintenance of essential services during the war emergency, and

WHEREAS some of these nurses may wish to continue in the field of public-health nursing, therefore

BE IT RESOLVED that the Public Health Nursing Section of the Canadian Public Health Association recommend to employing agencies that, in the future, applications from married nurses be considered on the same basis of qualifications, experience and individual circumstances as those from unmarried nurses.

WHEREAS the control of syphilis and gonorrhoea is a problem of national importance, and

WHEREAS public-health nursing has proved to be an effective agency in the education of the family with respect to health and in the control of communicable disease, therefore

BE IT RESOLVED that community nursing programs should be organized to include measures to control venereal disease, and

BE IT FURTHER RESOLVED that special *refresher courses* and staff-education programs be developed to ensure that every public-health nurse shall acquire up-to-date information, effective methods and desirable attitudes to assist them in contributing to the control of syphilis and gonorrhoea.

WHEREAS adequate care of the sick is essential to the development of a sound public-health program, and

WHEREAS close relationships between health authorities and institutions and agencies that care for the sick are desirable, therefore

BE IT RESOLVED that the Public Health Nursing Section request the Executive Council of the Canadian Public Health Association to take steps to study this matter and to take action to achieve the desired end.

Vital Statistics

SUMMARY REPORT OF THE DOMINION-PROVINCIAL CONFERENCE ON VITAL STATISTICS

The Fourth Dominion-Provincial Conference on Vital Statistics was held at the Chateau Laurier in Ottawa, from September 26th to 29th, and from every viewpoint it proved successful. Many problems in connection with the registration of vital records and the compilation of statistical data were considered in their fullest implications.

Owing to illness in his family the Honourable James A. MacKinnon, Minister of Trade and Commerce, was unavoidably prevented from being present. On his behalf, Mr. S. A. Cudmore, Dominion Statistician, who was later unanimously elected Chairman, welcomed the delegates and visitors. The address of welcome which Mr. MacKinnon had prepared was incorporated as part of the proceedings of the Conference and the following are a few of the more pertinent paragraphs:

"Following the Conference last year I received several suggestions to the effect that these meetings should be held annually. In this connection I communicated with the Provincial Ministers, who were unanimous in their opinions that such a course of action would be highly desirable and in the best interests of the public. I heartily concur in the views of the Ministers that Conferences such as this should be held annually, but if at any time that is found impracticable, they should be held at least every other year, as there is no doubt in my mind that these Conferences are the most effective means of solving problems vital to the welfare of our people.

"There has been considerable criticism of the Government regarding the lack of properly co-ordinated medical statistics, and since we last met, my colleague, the Honourable Ian Mackenzie, Minister of Pensions and National Health, has requested that the Dominion Bureau of Statistics assume the responsibility for the collection and analysis of statistical material for his Department. I have had several consultations with him on

this subject, and we feel that such a course of action is desirable and will eliminate duplication of effort. Accordingly the scope of the activities of the Vital Statistics Branch is being extended in order to meet the ever-increasing demand for public health statistics. The advantage of such a move is that in a central Bureau of Statistics it is possible to bring together a vast amount of related data concerning the people of a country.

"Consequently we have decided to consolidate our Federal public health statistics and in order to crystallize the medical statistical needs of the different departments concerned, I propose to constitute a Technical Medical Advisory Committee on Vital Statistics to the Dominion Statistician. The functions of this Committee will be to advise on medical matters relating to the material which would be collected and analyzed. The Dominion Statistician will need to know also the type of statistics which should be compiled in order to meet the administrative requirements of the various Divisions of the Department of Pensions and National Health and the Medical Services attached to other departments such as the Indian Affairs Branch of the Department of Mines and Resources and the Department of National Defence. By referring our textual material on public health and medical subjects to this advisory Committee the medical concepts in our national statistical studies and publications will be protected.

"Already the Dominion Bureau of Statistics has made considerable strides in the organization of the venereal disease statistics of Canada. This work is being accomplished in collaboration with Lt.-Col. D. H. Williams, who is in charge of the national program for the suppression of these scourges of humanity both among the civilian population and the personnel of the Armed Forces.

"A national report Form for the Notification of Venereal Infections has been adopted and put into use by the majority of the provinces, and a twenty-five year survey of this phase of public health work is well under way. These important undertakings for the Divi-

sion of Venereal Disease Control have meant a considerable extension of the Bureau's responsibilities, but our staffs could not have brought about these achievements alone; they have been accomplished through the unified efforts of the provincial and the Dominion officials."

Mr. Cudmore, in greeting the provincial delegates and those of other Canadian government departments and national organizations, expressed the desire that the discussions should be frank, free and constructive, with no objective in mind except to render better service to Canada, its provinces and its people.

In introducing the guests from the United States, Mr. Cudmore spoke of the benefit the conference would derive from the presence of Dr. Halbert L. Dunn, Chief Statistician for Vital Statistics, Bureau of the Census, Washington, D.C., and Mr. T. J. Duffield, Director, Bureau of Records and Statistics for the City of New York, each an outstanding figure in his particular sphere, and emphasized that the strengthening of mutual understanding in every department of administrative government is essential to the unity and solidarity of the countries of the world. Every step in that direction, no matter how small and insignificant it may appear, adds its weight to the common weal.

Mr. Cudmore further remarked in part:

"This Conference meets at an epoch-making moment in the history of civilization, when after five years of war that has threatened the destruction of the four freedoms that we hold dearer than life itself we at last see our way clear to a victorious conclusion of this vast conflict. The free nations are now definitely on top. This means that we have what we might not have had—the opportunity to establish a better Canada for the benefit of all its people. To that betterment this conference should make its contribution.

"First of all, I should like you throughout this conference to bear in mind that the Dominion Bureau of Statistics has no connection with administration; its functions are limited to serving and providing accurate

information required by the Dominion and Provincial Governments in the directing of their policies on a great variety of subjects. We have no responsibility whatever for the determination of policy, but we provide information that is needed for the implementation of any policies that may be decided upon or even contemplated by our respective Governments. Throughout the whole field of our work we enjoy the cordial co-operation of various departments of government in each of the nine provinces of Canada, and in return we feel ourselves bound to supply statistical information on a great variety of subjects to the Provincial Governments, as well as to the Dominion. We also serve those engaged in every line of business throughout the length and breadth of the country and in every province. In every field in which we work we aim to supply the various Governments and the ordinary citizens of Canada with information required for the more effective carrying on of their respective activities.

"This is our general function in the Canadian set-up and our arrangements for performing that function are worked out in consultation with provincial representatives in the field of vital statistics as well as in many other fields of operations. The original system of Dominion-wide vital statistics was brought into effect by the Conferences on this subject that were held between the Dominion and the Provinces in 1918, and for nearly 25 years now we have been working together with you in producing the required statistics on the plan originally agreed upon between the Dominion and the Provinces. The plan upon which our statistics is based is yours as well as ours and all the resulting statistics are yours as well as ours. I believe that our co-operation, our working together, in the field of vital statistics has been satisfactory both to you and to us, and that, thanks largely to the devoted work of provincial and local registrars and of the medical profession, our vital statistics have shown continuous improvement throughout this period. However, since nothing human is perfect, we are always desirous of receiving your advice and suggestions for further betterment of our work and for its adaptation to the increasing current and prospective needs of this enormous and growing country.

"In recent years, largely owing to the impact of the war upon men's minds, there

has been increasing pressure upon us to develop the scope of our work in vital statistics so as to include the statistics of public health, more particularly in connection with the various schemes of social welfare administration that are now engaging the attention of our masters in the Dominion and Provincial Governments. Most of you have seen the large volume published in connection with health insurance, which includes a great deal of material contributed by this Bureau of Statistics, while in recent months the question of children's allowances has come into the forefront of our public life.

"Accordingly, since our last conference a year ago it has been decided to extend the functions of our Vital Statistics Branch to include morbidity statistics, and our Estimates for the current fiscal year have provided a considerable addition to our funds for the staff required to strengthen our Vital Statistics Branch so that it may discharge with competence its increasing obligations to the Canadian people. For the proper guidance of our work it is also proposed to set up a technical medical committee which will advise the Dominion Statistician in connection with medical and public health matters. That should be organized upon the most approved lines and with the maximum of advantage to our people. If I may repeat the rather hackneyed phrase, it is our earnest and ardent desire that after the war Canada may be more and more a land fit for heroes to live in. It is the obvious duty of us older men to assist as far as we can in bringing about this desired consummation, and I am sure that we shall have your support in making progress towards the realization of our ideal.

"Our subject is vital statistics—the statistics of life. As Ruskin has said in pregnant phrase, 'There is no wealth but life'. Thus the statistics of life are more important than any other statistics. Working together we can make the vital statistics of Canada at least as good as those of any other country in the world."

Mr. Cudmore announced that Dr. Mary A. Ross, formerly of the School of Hygiene at the University of Toronto and Vice-president of the Canadian Public Health Association, had recently joined the staff of the Vital Statistics Branch of the Bureau as Field Research Assistant.

"The Importance of Balance between Vital Registration and Vital Statistics" was the title of the discourse presented by Dr. Halbert L. Dunn, Chief Statistician, United States Bureau of the Census, Washington, D.C. He pointed out that vital statistics are essential and are wholly dependent upon a satisfactory vital registration procedure. There are certain objectives to be achieved by the "vital registro-statistics system" and it is imperative that rules, regulations and laws should be developed to implement them. He predicted that if the continued growth of vital statistics is not nurtured through united efforts, owing to the overwhelming public demands for registration services public health and social statistics will in all probability absorb vital statistics.

Dr. Dunn said in part:

"The idealistic American life of fifty years ago has changed. As people come into closer contact in crowded communities, vital records are of increasing importance to protect and insure the privileges of the individual. . . .

"The interests of registration and statistics are compatible. It needs leadership and intelligent planning to develop them into a harmonious and balanced pattern, which will bring added strength to both subjects."

Mr. T. J. Duffield, Director of the Bureau of Records and Statistics, New York City, spoke on "Vital Statistics and the Public Health." He gave, in graphic form, a history of vital statistics from their beginnings centuries ago. His account of the present system in use in New York City proved most interesting and instructive as he distributed among the delegates charts showing the trends of infant, maternal and general mortality in that city. One particularly interesting chart brought to light the fact that the maternal mortality rate among the Negro population was three times as high as that of the white population, standing at 52.5 as against 17.6 per thousand live births.

At the conference last year it was decided that certain National and

Provincial tabulations for 1943 should be published by "Place of Residence," instead of by "Place of Occurrence." However, when the situation was finally analyzed by the Bureau of Statistics it was found impossible to effect the changes necessary until certain problems were cleared with the provinces, such as:

"(a) whether deaths of overseas casualties should be included in the regular tabulations by place of residence or be subject to special tabulations only;

"(b) whether the births and deaths of United States residents should be excluded from the tabulations and the births and deaths of Canadian residents occurring in the United States should be included in the tabulations, or whether the former group should be tabulated as residents of the place of occurrence, and

"(c) the treatment of births and deaths in Canada of persons resident in other countries."

After due deliberation it was unanimously agreed that it was not feasible to include overseas casualties in the regular compilations and, therefore, the Dominion Bureau of Statistics should supply the provinces with special tables covering those casualties.

Concerning the non-resident births and deaths it was agreed that they should be excluded from the tabulation by place of residence and that all births and deaths of Canadian residents occurring in any other country should be included, in so far as it is practicable.

An excellent treatise on the subject "The Collection of Vital Statistics Data in respect to Racial Origin" was presented by Mr. Herbert Marshall, Assistant Dominion Statistician. As this subject has been one of vital interest for some time, a committee of Dominion Bureau of Statistics officials was constituted recently for the purpose of studying the question. The object in view was to develop an improved procedure which, as Mr. Marshall stated, "would disarm some of the critics, perhaps remove some enumeration difficulties and continue

to furnish adequate information to the many who are interested in it."

Mr. Marshall pointed out that statistics by racial origin have a wide demand and fill a real need. In connection with vital statistics special studies are at times requested regarding the incidence of certain specific diseases on certain groups of the population. Racial origin data on births, deaths and marriages are valuable in connection with intercensal estimates and in checking on the adequacy of census enumeration. The cultural characteristics of special groups in the population make it necessary that the size of such groups be known for many purposes such as commodity production.

After an interesting discussion on many phases of the problem, it was agreed that specific vital statistics difficulty occurs in regard to the collection of data relating to the Swiss. The conference recommended that the Committee consider a suggestion that the tabulations on racial origins should include Swiss as a separate entity.

Dr. P. E. Moore, of the Indian Affairs Branch, Medical Services, told the delegates of the progress made in the past year in connection with the introduction of the new forms for the registration of Indians. Owing to unavoidable delay in getting the program under way, he considered that the plan had not been in operation for a sufficient length of time to reach a decision as to its ultimate success. Dr. Moore made the suggestion, which received the unanimous approval of the delegates, that the time for the trial of the forms be extended for another year, beginning January 1, 1945.

The conclusions of three committees of the Canadian Public Health Association were presented by the respective chairmen. Dr. Ernest Couture, Chief, Division of Child and Maternal Hygiene, and Chairman of the Sub-committee on Stillbirth Registration and Certification, presented an interim report respecting the Coding List for Stillbirths prepared by the

committee. He pointed out that there was a very evident improvement in the reporting by physicians since he made his report at the conference held in 1943. At that time, he reported that for the year 1942 nearly one-third of the stillbirths were classified, by the Bureau, to "ill-defined" or "not stated" causes, while the figures for 1943 show that the percentage has dropped to fifteen per cent classified to "ill-defined" and seven per cent to "not stated."

Dr. Couture considered that, as yet, the List had not received a fair trial, and that a more general use should be made of it before definite conclusions could be drawn respecting its potential value. It was agreed by the delegates that the Dominion Bureau of Statistics should prepare copies of the List for distribution to all the provinces for study and experimentation.

It was also recommended that in respect to joint causes of stillbirths, preference should be given to causes in the mother rather than to causes determined in the foetus, placenta and cord.

Dr. J. Wyllie, Professor of Preventive Medicine, Queen's University, Kingston, and Chairman of the Subcommittee on the Revision of the International List of Causes of Death, reported on the progress of the preparation of a new edition of the Handbook on Death Registration and Certification, which is to supersede the booklet issued in 1937 and which is still in use as a teaching medium in Canadian universities. The material was prepared in the Vital Statistics Branch of the Dominion Bureau of Statistics and presented to the committee for their consideration and recommendations.

Constructive and valuable suggestions were submitted by Dr. Wyllie, on behalf of his committee, as to the manner in which they considered the prepared material might be brought to a standard of efficiency not achieved in any previous publication.

The work in connection with the editing and final printing of the book-

let will be proceeded with by the Bureau of Statistics without delay, and it is hoped that copies will be ready for distribution to the universities early in 1945.

The Canadian Medical Association was represented by Wing Commander Sellers, Medical Records, Royal Canadian Air Force, who, during the discussions on Dr. Wyllie's report on the Handbook on Death Registration and Certification, expressed the opinion that no other effort has done so much to improve the reporting of Causes of Deaths on certificates as has the introduction of the procedure for teaching medical students in the medical schools the principles and practices which should govern them in certifying causes of deaths.

In pledging the continued support of the Canadian Medical Association, Wing Commander Sellers said in part:

"The fact that the Dominion Bureau of Statistics has produced the Handbook now in use, and will produce this further edition, constitutes a great contribution toward improving the certification of Causes of Death in Canada. On behalf of the medical profession, I feel quite free to say this, that should it be felt that the Canadian Medical Association, through its official organization, or through its official organ, the Journal, can at any time do anything to facilitate or stimulate, improve or modify practices which, in view of the Bureau of Statistics and the provincial registrars require such change, the Journal and the Association would be only too glad to do so."

Mr. Scott, Director of Vital Statistics, Victoria, B.C., presented an interim report on behalf of the Committee on Form and Content of the Annual Vital Statistics Report. He stressed the need for close scrutiny of the reports as they emanate from the various levels of government—national, provincial and municipal. He referred to the paper presented by Dr. Forest E. Linder of the Bureau of the Census, Washington, at the 1943 meeting of the American Public Health Association, in which it was pointed out that the federal reports tended to have a great deal of scope,

but they do not have the exactitude or the homogeneous quality that reports have which are made on the local level.

The committee considered that the reports at each level should endeavor to bring out as much detail as possible with respect to specific conditions and while there should be considerable standardization there should be also a good deal of flexibility.

With regard to the collection of divorce statistics, Mr. J. T. Marshall, Chief, Vital Statistics Branch, Bureau of Statistics, reported that the situation had been surveyed and as a result a form had been drafted embracing most of the suggestions which had been put forward, some by Dr. Enid Charles, Census Research Specialist, Bureau of Statistics, in her paper at the 1943 Conference. Some were taken from the United States Report "The Purpose and Use of the Proposed Standard Certificate of Marriage and Standard Certificate of Divorce" and some from other interested agencies.

The survey revealed that in some provinces court rules would have to be amended by an Act of the Legislature in order to secure on a registration form the most important items required in the analysis of marriages broken by dissolution or annulment. Therefore, it was agreed by the conference that the provincial officers should take copies of the form, as drafted, home with them for discussion with those officers who are responsible for court procedures, and report at the next conference, when full consideration could be given to all the implications.

The problem of delay in publishing vital statistics data in the annual reports might be offset by the release of special reports on specific subjects such as births, infant and maternal mortality, similar to the Special Reports issued by the United States Bureau of the Census.

The conference recognized the significant contributions and helpful assistance afforded the deliberations by the official representatives of the

Canadian Public Health Association, the Canadian Tuberculosis Association and the Canadian Welfare Council in the persons of Dr. N. E. McKinnon, Dr. G. J. Wherrett and Dr. G. F. Davidson, respectively.

The Standing Committee which was set up at the 1943 Conference and invested with the duty of giving study to the problem of delayed registrations of births, under the chairmanship of Mr. Donald MacKie, Edmonton, Alberta, presented recommendations regarding the minimum standards of evidence required in order to effect delayed registrations—events registered after the lapse of one year from the date of birth. The committee expressed the desire that a system as nearly uniform as possible throughout the various provinces should be evolved to deal with delayed registrations. After a lengthy and comprehensive discussion on all the pros and cons, standards of acceptable evidence, divided into classes A and B, were agreed to by the delegates.

The Dominion Statistician was requested to consider the possibility of making available the records of the nearest census following the birth of an applicant desiring evidence necessary to procure a delayed registration of birth. Mr. Cudmore stated that was a question to which he could not give an immediate answer and at best would only apply to statements made years ago to the census enumerators—only censuses of thirty years and over can be consulted even for the purposes of old-age pensions.

In this connection it was also resolved that the Department of Education of each province require an entry in all school registers of the date of birth of each child entering school for the first time.

The general sessions closed on Wednesday afternoon. On Thursday morning the Provincial Registrars held a joint session with the Dominion Council of Health, when the implications of social security measures for vital statistics were discussed. On

Thursday afternoon and Friday morning the Provincial Registrars were in joint session with the Ontario officials when the technical aspects of the

proposed new "Vital Statistics Act" for the Province of Ontario were considered.—E. CLARKE, *Statistician, Dominion Bureau of Statistics.*

THE ANNUAL CONFERENCE OF THE VITAL STATISTICS SECTION OF THE CANADIAN PUBLIC HEALTH ASSOCIATION

THE annual conference of the Vital Statistics Section was held in the Chateau Laurier, Ottawa, on September 25th. Dr. Paul Parrot, Demographer of the Ministry of Health and Social Welfare, Province of Quebec, and 2nd Vice-chairman of the Section, presided in the absence of Dr. C. R. Donovan of Winnipeg, who was unable to attend.

Three papers were presented: "Canadian Vital Statistics during the War Years," by Dr. Enid Charles, Census Research Specialist, Dominion Bureau of Statistics; "The Need for Morbidity Record," by Dr. N. E. McKinnon, School of Hygiene, University of Toronto; and "Health and Welfare—Two Departments or One?" by Dr. George F. Davidson, who at that time was Executive Director of the Canadian Welfare Council.

The report of the committee on nominations was presented by the chairman, Dr. D. T. Fraser, and the following officers were elected for 1944-45: Chairman, Dr. Paul Parrot, Quebec; 1st Vice-chairman, Dr. Harold Robertson, Halifax; 2nd Vice-chairman, Dr. T. A. Lomer, Ottawa; Secretary, Mr. J. T. Marshall, Ottawa; Section Council: Mr. E. S. Macphail, Ottawa (life member), Mr. G. L. Holmes, Toronto (1945), Dr. J. Wyllie, Kingston (1946), Dr. F. S. Burke, Ottawa (1947), wing Cmdr. A. H. Sellers, Ottawa (1948), Dr. L. A. Pequegnat, Toronto (1949), and Mr. J. D. B. Scott, Victoria (1950).

Dr. J. Wyllie presented the report of the committee on resolutions, which dealt with matters of routine business of the Section, there being no Section activities for which resolutions were required.

The secretary reported two recommendations of the Section Council:

(1) That a special committee be appointed to study the structure of the committees of the Vital Statistics Section and to recommend an outline of the responsibilities of these committees. The recommendation of the Council was approved and the following were appointed to the special committee, with power to add to their numbers: Wing Cmdr. A. H. Sellers, chairman; Dr. Mary A. Ross, and Dr. J. Wyllie.

(2) That a special committee on populations be appointed, with the request that Dr. N. E. McKinnon convene the committee and act as chairman.

This recommendation of the Council was also approved.

Wing Cmdr. A. H. Sellers presented the report of the Committee on the Certification of Causes of Death.* The report was approved.

Dr. Ernest Couture reported on behalf of the Subcommittee on Still-birth Registration and Certification, stating that the work of the committee was progressing on the specific material which had been submitted by the Dominion Bureau of Statistics in connection with the creation of a standard manual for the classification of stillbirths in Canada.

Reporting on behalf of the Subcommittee on Revision of the International List of Causes of Death, Dr. J. Wyllie stated that his committee had considered the material which had been prepared by the Dominion

*This and other reports presented at the conference were published in the November issue of the Journal (pages 454-459).

Bureau of Statistics for publication in the Handbook on Death Registration and Certification and recommended some changes in form and the addition of other material similar to that which is to be found in the American "Physicians' Handbook on Birth and Death Registration." The material was returned to the Dominion Bureau of Statistics for incorporation of the recommendations and will then be forwarded to the main Committee on Certification of Causes of Death for final action.

Mr. J. D. B. Scott gave an interim report on behalf of the Committee on the Form and Content of the Annual Vital Statistics Reports, and also reported on behalf of the Committee on Membership and Archives.

Dr. F. S. Burke presented the report of the Committee on Morbidity Classification and Statistics.

The reports of the committees were adopted by the Section.

The secretary reported that he had not had occasion to refer any matters to the Subcommittee on Confidential Death Certification, the Committee on Rules of Vital Statistical Practice, or the Committee on Residence Allocation.

The meeting adjourned at 5.45 p.m. and reconvened at 8.30 p.m. at the National Film Board, where a number of outstanding pictures of general interest were shown to the members through the courtesy of Mr. John Grierson, Government Film Commissioner. The program was arranged by Messrs. Ross MacLean and Donald Moffat.—J. T. MARSHALL, *Chief, Vital Statistics Branch, Dominion Bureau of Statistics, and Secretary of the Vital Statistics Section, Canadian Public Health Association.*

Association News

OFFICERS FOR 1945

THE Committee on Nominations, comprising Dr. G. R. Walton, Regina (chairman), Dr. W. H. Hill, Calgary, Dr. J. J. MacRitchie, Halifax, Miss Edna L. Moore, Toronto, Dr. Stewart Murray, Vancouver, and Dr. J. T. Phair, Toronto, presented the following nominations of officers for 1945 which were adopted by the Association during its thirty-third annual meeting, held in Toronto on November 6, 7 and 8, 1944:

Honorary President: The Hon. Brooke Claxton, Minister of National Health and Welfare, Ottawa.

President: Dr. C. W. MacMillan, Chief Medical Officer, Department of Health of New Brunswick, Fredericton.

Vice-Presidents: Dr. A. R. Foley, Epidemiologist, Ministry of Health and Social Welfare, Province of Quebec; Miss Elsie Hickey, Director, Division of Public Health Nursing, Department of Public Health, City of Toronto; Dr. W. H. Hill, Medical Officer of Health, Calgary.

Honorary Secretary: Dr. J. T. Phair, Chief Medical Officer of Health, Province of Ontario, Toronto.

Honorary Treasurer: Dr. D. V. Currey, Medical Officer of Health, St. Catharines.

Editor, Canadian Journal of Public Health: Dr. R. D. Defries, Director of the School of Hygiene and Connaught Laboratories, University of Toronto.

Executive Committee: Dr. G. F. Amyot, Victoria; Major-General G. B. Chisholm, Ottawa; Dr. D. V. Currey, St. Catharines; Dr. R. D. Defries,

Toronto; Dr. D. T. Fraser, Toronto; Dr. Adélar Groulx, Montreal; Miss Elsie Hickey, Toronto; Dr. C. W. MacMillan, Fredericton; Dr. B. T. McGhie, Toronto; Miss Mary S. Mathewson, Montreal; Dr. Allan R. Morton, Halifax; Dr. G. D. Porter, Toronto; and Dr. Arthur Wilson, Saskatoon.

THE 1944 EXAMINATIONS FOR THE CERTIFICATE IN SANITARY INSPECTION (CANADA)

THE Committee on the Certification of Sanitary Inspectors has announced that forty-two candidates were successful in the 1944 examinations and have been granted the Certificate in Sanitary Inspection (Canada). In addition, four candidates were successful in all but one subject, which they will have to repeat at a subsequent examination before they can obtain the certificate. The successful candidates and those conditioned in one subject are as follows:

British Columbia: Byron Arden (*Sanitation*), George Hubert Armson, George Auton, Albert Carter Dobson, Robert Forrester, Herbert Husband, George Lloyd Smith, Ernest B. Winstanley (*Sanitation*).

Alberta: Laurel Edgar Benham, Robert James Boutillier, John Hugh Brown, Francis Copps Costello, Frank Earl Fleming, Carl H. Meyer, John Francis Victor Webb.

Saskatchewan: Joseph Jeremie Paquette.

Manitoba: Albert August Black, Lloyd George Williams, Sidney Leonard Wootton.

Ontario: Christina Anderson, Harry Gordon Burke (*Communicable Diseases*), James Wesley Conner, John Richard Elley, James Keith Ferris, Frederick Leighton Lunn, Joseph Leon Robert Marier, Francis Albert Moore, Ranald Keith Montgomery, Harry Dickson Rice, Arthur Leslie Sitler, Harry Alvin Smith, Donald Lamont Stuart, Joseph Paul Truant, Merritt Lyle Wright.

Quebec: Joseph Gustave Germain Benoit, Rolland Bleau, Julien Brien, Gabriel Couture, Laurent Lalonde, Rodolphe Langlois, Julien Lemoyne, John Henry Wilson.

Nova Scotia: Beryl Delmar Doane, Harold Oscar Hughes, William Livingston McEwen, Jerome Nicholas Tompkins (*Communicable Diseases*).

With the granting of the certificate to these forty-two candidates, the Canadian qualification has been obtained by three hundred and thirty-six sanitary inspectors since the examinations were first held in 1935.

As in past years, the responsibility for conducting the examinations was left with the Provincial Departments of Health, and the chairman of the provincial board was appointed by the Deputy Minister. The second member was chosen by the chairman and the third was nominated by the Canadian Institute of Sanitary Inspectors. The Committee on the Certification of Sanitary Inspectors gratefully acknowledges the co-operation of the following members:

British Columbia: Dr. Stewart Murray, chairman, Mr. A. E. Gordon, and Mr. G. A. Rogers.

Alberta: Mr. D. B. Menzies (chairman) and Dr. G. M. Little.

Saskatchewan: Mr. J. G. Schaeffer (chairman), Dr. G. R. Walton, and Mr. M. H. Kennedy.

Manitoba: Dr. C. R. Donovan (chairman), Mr. L. B. English, and Mr. G. W. Kelly.

Ontario: Dr. J. G. Cunningham (chairman), Dr. L. A. Pequegnat, and Mr. D. S. McKee. In addition, Dr. J. A. Lavery and Mr. R. W. Ruggles assisted with the oral examinations.

Quebec: Mr. Théo. J. Lafrenière (chairman), Dr. Adélar Groulx, and Mr. Aimé Cousineau.

Nova Scotia: Dr. P. S. Campbell (chairman), Dr. D. J. Mackenzie, and Mr. H. W. Johnston.



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The Maternity Hospitalization Act of Alberta
MALCOLM R. BOW

A Mouse Protection Test for Cholera Vaccine
L. E. RANTA and C. E. DOLMAN

Communicable-Disease-Control Activities
EDWARD A. LANE

Mortality Reductions in Ontario
N. E. MCKINNON



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Toronto, December, 1944

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THANKS TO YOU, DOCTOR

1944 IS NOW HISTORY. May we voice our appreciation? The splendid support you have afforded our products, not only during the year past, but within the past decade, is most gratifying.

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THANKS AGAIN, DOCTOR, and may the coming year be one of health, prosperity and happiness for you and yours and may we continue to serve you for many years to come.

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THE SECOND TERM OPENS JANUARY 3, 1945

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The of DIABETES



What diabetes is. Certain cells in your body—in a gland called the pancreas—produce a substance named *insulin*.

This enters your blood stream and enables your body to store sugar and convert it, as needed, into muscle energy.

Lacking insulin, sugar would simply accumulate in your body. You would become unquenchably thirsty for water to carry this excess sugar from your system—*unused, wasted*. You would be constantly hungry because of the calories lost, and would probably lose weight steadily.

You would have diabetes.



How diabetes is treated. Today, mainly as a result of a miraculous discovery in 1921, diabetics have a good chance of living as long as nondiabetics.

The discovery? That insulin can be extracted from the pancreas of certain animals, and that injections of it permit a diabetic to use the sugar and starches in his diet.

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How to guard against diabetes. Its most likely victims are:

1. *Middle-aged, overweight people*—Avoid overweight by limiting the intake of sugar, starch, and fat—and by getting plenty of healthful exercise.
2. *People who have diabetes "in the family"*—Predisposition to diabetes is hereditary. If anyone in your family has had diabetes, you should watch your diet and exercise and have periodic physical check-ups *with urinalysis*.

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